New Things Not Found in Any Books

To Bring Freight TRAINS Right Up to Your BACK DOOR

Very Ingenious Method of Overcoming Railroad Inefficiency and Delivering Freight Like Express or Parcels Post Packages

THE wasteful inefficiency of the railroads is well-known to everybody who ships freight or receives freight. Mr. Louis D. Brandeis, who made a special study of this, declares that at least $1,000,000 is wasted every day by the railroads. Methods of handling freight have made little or no improvement in the last fifty years.

But the railroads are not the only ones that suffer. If the railroads themselves lose $1,000,000 a day by their own bad methods, their customers, the freight shippers and receivers, lose at least another $1,000,000 a day. It is this latter aspect of the matter which has attracted the attention of the Scientific American to attempt to apply the modern principles of scientific efficiency to help the situation. This very progressive and wide awake weekly concludes that the motor truck may be employed in an ingenious way to largely solve the problem. It points out a way to deliver railroad freight at your door without delay like an express bundle or a parcel post package.

In a very interesting editorial on this important subject the Scientific American says:

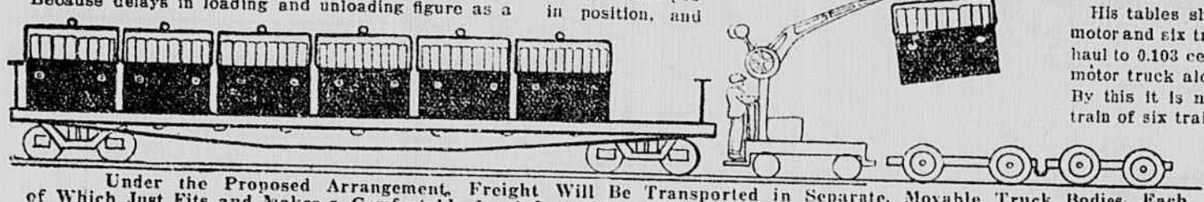
In the small city the freight terminal is located near the business centre and is of such capacity as to handle all the freight expeditiously and afford ample room for teamsters. But as the town grows the radius is increased, lengthening the average haul of the trucks, while on the other hand more freight flows into the terminal, producing congestion, so that although more freight is handled the profit in it is proportionately less. The larger the city the more valuable is the real estate around the terminal, making it costly to expand the terminal so it can accommodate the freight with the same facility as it did in the beginning. To move the freight terminal to new and more commodious quarters would in most cases be unprofitable to the railroad, because of the capital invested in the original location, and it would certainly be disadvantageous to the shipper or merchant because of the greater length of haul required.

However, if motor trucks are used instead of horse-drawn trucks the conditions are completely changed, for with its ability to cover the ground more rapidly an extra haul of three or four miles is far less serious than a long delay at the congested freight terminal. Delays are advantageous to the horse because they allow him to recuperate and store up energy for a greater effort. But the never-tiring motor truck should be kept on the move all the time, because only when it is in motion is it giving any value in return for the capital invested in it.

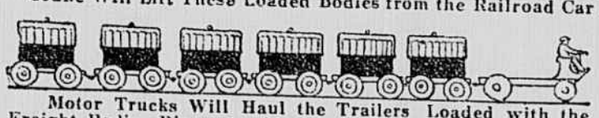
Hence, it appears, that it might be advantageous to a railroad or a group of railroads to establish one or more annex terminals which will divert part of the freight that now clogs the main terminals and which would be readily accessible to motor trucks. The suggestion calls for a great deal of study, and although there are many difficulties that would have to be overcome it is an exceedingly attractive proposition. It would mean the extension of the railroads to the final point of delivery.

Because delays in loading and unloading figure as a dead loss against a motor truck, efforts have been made to reduce this period to a minimum. Trucks are provided with mechanical loading devices, also with separate bodies which may be loaded or unloaded while the truck is in transit with another body. It might even prove practicable to transport the motor truck bodies fully loaded on flat cars. A flat car is nine feet wide, so that if the bodies were mounted transversely on the car they could be made at least nine feet long, which would be ample for the ordinary motor truck chassis.

The truck bodies mounted on rollers could then be loaded by the shipper, hauled to the railroad, rolled upon the flat car by means of a winch, clamped in position, and then, at the other end of the line, be taken off on the motor truck chassis in the same way and hauled off to the merchant's warehouse. The time of loading and unloading would thus be reduced to a minimum, and would prove advantageous not only to the consigner and the consignee, but to the railroad as well, for the cars would be released almost immediately on arriving at the freight station.



Under the Proposed Arrangement, Freight Will Be Transported in Separate, Movable Truck Bodies, Each of Which Just Fits and Makes a Comfortable Load for a Motor Truck Trailer. The Diagram Shows How an Electric Crane Will Lift These Loaded Bodies from the Railroad Car at the Central Terminal and Drop Them on the Trailers.



Motor Trucks Will Haul the Trailers Loaded with the Freight Bodies Direct to the Stores, Homes or Factories of the Consumers. Each Truck Will Keep Six Trailers in Operation—While It Is Hauling Two Trailers, Two Others Will Be Loading, and Two Others Unloading.

Furthermore, if the goods were properly packed at the factory it might be possible under certain conditions to deliver direct to the consumer instead of the warehouse.

Another promising development is the motor truck trailer. In a paper by Mr. Morgan Cilley, printed not long since in the Engineering Record, it was proven conclusively that a motor truck shows its greatest efficiency when hauling trailers. In other words, a motor truck can pull much more than it can carry. His tests showed that a three-ton motor truck could maintain a sustained draft of more than 3,000 pounds, and that two trailers each loaded with five tons would require a draft of from 750 to 3,000 pounds.

His tables show that the cost per truck mile with a motor and six trailers varied from 0.258 cent per half-mile haul to 0.103 cent per ten-mile haul, while the cost for a motor truck alone varied from 0.480 cent to 0.176 cent. By this it is not meant that the motor truck hauls a train of six trailers at a time, but only two, while there are two loading and two unloading. Trailers are now being made for this purpose, the wheels of which will track with those of the motor truck, so that there is no difficulty in turning corners or threading a way between obstructions. If such a method of handling freight should prove practical, motor trucks would probably be materially changed in design, because they would not have to support any load except their own weight.

Thus we would have railroad freight trains quickly converted into trailer trains hauled by motor trucks or motor tractors in place of locomotives.

A Way to Make the DEAF HEAR

AN invention which is said to do wonders in the way of restoring the power of hearing to deaf ears is is now being brought to perfection in England.

It consists first of an ingenious apparatus for measuring either the extent of your deafness or your ability to hear well. This apparatus is so delicately adjusted that it divides hearing into 3,500 different grades, and a person with normal hearing using it can distinctly hear the faint sound produced by the fall of a tiny paper wafer. The gentle stroking of a piece of paper produces, when heard through this apparatus, a peculiar hissing sound.

After this apparatus has tested the degree of hearing a person possesses or lacks, it is claimed that a receiver can be made which will enable even the stone deaf to hear. This receiver is so small in size that it can be hidden under one's tie, the sound being transferred to the ear along a practically invisible wire.

But before a receiver is fitted to a deaf person's ears he is given a course of training with a device called the sound educator. This acts directly upon the basilar membrane, the part of the ear where the accommodation of sound takes place. By gradually increasing the vibrational range this membrane is slowly but surely educated to do the work it was intended to do.

It has been found that very few cases of deafness fail to receive benefit from this system of sound education. Usually marked improvement is shown after only one or two treatments. In the case of a young girl who was born deaf she was able, after a month's "education" of her ear by this new method, to hear ordinary conversation, and now, with the aid of one of the little receivers, she finds it possible to enjoy phonograph records.

How MAN GREW from the APE'S HUNGER for MEAT

IF the apes in far distant ages had not grown tired of living in the trees and subsisting on a diet that contained only nuts, leaves and fruit, there would probably never have been any human race. It was because the ape grew weary of his light vegetarian diet and began to crave the more substantial flesh and blood that he left his home in the trees and took to living on the ground, where he could hunt the food that satisfied his appetite, says Professor Carvette Read, of the University of Cambridge, England. And it was this change in the ape's mode of living which finally led to man's evolution.

In this evolution, according to Professor Read, the flesh-eating ape passed through nine distinct stages as follows:

1. Life on the ground and beyond the limits of the forest.
2. The erect gait as the normal mode of progression, with all the changes of bone, joint and muscle that made this possible.
3. The lengthening of the legs and specialization of the feet.
4. The shortening of the arms and development of the hands.
5. The use of wrought weapons and snares.
6. Association and co-operation for the purpose of hunting, especially the hunting of big game.
7. The beginnings of articulate speech as a means to such co-operation.
8. Great increase of knowledge and intelligence as required by the change of life.
9. Discovery of the way to produce fire during the making of weapons of flint or wood.

Professor Harry Campbell, of London University, also takes the view that man owes his origin to an ape's longing for animal food. "Man's evolution from the ape," he says, "has been essentially a mental evolution. Only a being possessed of prehensile hands, capable of giving effect to the dictates of mind, could evolve into man.

"An oyster endowed with the mind of a Newton would in no way be advantageous in the struggle for existence. It was the abandonment of an arboreal for a terrestrial life, in the search after animal food, which determined man's evolution from the ape. While the carnivorous mammal was a perfect butchering machine, endowed with the necessary instinct for scenting and stalking its prey, and the necessary equipment of muscle, tooth and claw for seizing and destroying it, the prehuman ape, lacking those endowments, but gifted with hands and no small degree of intelligence, was obliged to rely upon those in hunting his prey."

Crop Item.

"Do you think the corn crop has been affected by the weather?"

"Think not; my chiropodist tells me he was never so busy as now."

Of Course.

"Why do they say that the ghost walks on pay-day?"

"Because that's the day our spirits rise."

First Human Portrait Ever Made---15,000 Years Old

Interesting Scientific Speculations Concerning the Very Odd-Looking Man, Whose Picture Carved on a Piece of Mammoth Bone, Has Been Found in a Prehistoric Shelter Rockin France.

FRENCH scientists claim that they have found the first picture of a man ever made by man. The discovery has excited intense interest in France and throughout Europe.

The portrait belongs to the prehistoric period of France known as the Aurignacian, and is at least 15,000 years old, according to a calculation based upon the debris found above it.

Here you may see the picture of man as he drew himself ten thousand years before the date of creation as fixed by the old-fashioned Biblical chronology.

The discovery has raised a number of extremely interesting questions which are being discussed by European archaeologists. How long had man been in existence before he knew enough to make such a picture? Did he look as queer and inhuman as this, or was the artist merely following some peculiar fashion? How did these people live? Why did they give up so much time to making pictures at this rude period, when they might have been killing bears, building houses or doing something practical?

Jean Pissot, a druggist of Poncin, in France, and Dr. Lucien Mayet, a professor at the University of Lyons, made the discovery. The portrait was found along with other early remains under the huge cliff known as the Colombiere rock, near the banks of the Ain river.

The cliff falls away toward the earth and thus forms a large shelter. Prehistoric men often made use of such places. The shelter protected them from the rain and some of the wind and yet gave them light and air. They had caves to which they could retire when the weather was very bad. The Colombiere shelter faces toward the south.

As long ago as 1875 this place was recognized as having been a resort and dwelling place of prehistoric men. Ever since then fresh relics of early ages have been found from time to time. Just under the surface of the ground was found a layer of remains left by a race of neolithic men, the kind of people who built Stonehenge and other great stone monuments. They made polished stone implements and were very skilled in their use.

Under that was a layer full of remains of the early prehistoric period called Magdalenean. This layer was about three feet deep. Under this was a layer of many feet of sand without any remains whatever, indicating a passage of thousands of years between the Magdalenean layer and any previous occupation.

Below this layer the searchers came upon flints chipped in the rough style of the men called Aurignacians, from the place in another part of France where this period was first identified.

In this layer the searchers found many remains of animals that have been extinct for thousands of years, some of them strange monsters. Hundreds of objects of the same style of workmanship proved clearly that this was the workshop of one period and not an accidental jumbling of objects from various periods. There were stone hatchets with indented backs, pedunculated arrow heads, bindings for arrows and spears, scrapers, burins for engraving bone and various instruments of worked bone. The animals whose remains were found included the mammoth, the hairy rhinoceros, the reindeer and many others.

While they were digging toward the west end of the layer and far down they came upon a regular studio of an Aurignacian artist buried in the sand. Here were bone engraving instruments of various kinds, large plaques of mammoth and rhinoceros bone, needles of reindeer bone, slabs of chalk prepared for engraving and numerous examples of the artist's work.

Among the examples of prehistoric art just found—that was at the beginning of last Summer—was a picture of what appeared to be a zebra or perhaps a striped horse of an extinct type. There were pictures of a buffalo, a feline creature and a wild sheep.

Then the searchers came upon the great discovery of the collection a few weeks ago. It was a large plate of bone from the shoulder blade of a mammoth.

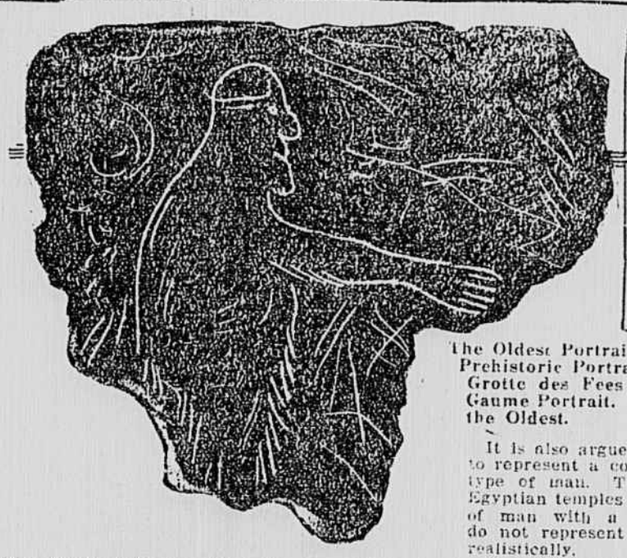
Upon this was engraved clearly the head and figure of a man, the first man ever depicted as far as our present knowledge goes. It is calculated that he could not have lived less than 15,000 years ago and is probably older.

There are several other drawings upon the bone. These are a woman's figure without a head, a bear, a reindeer and an imperfect sketch of what appears to be a fish.

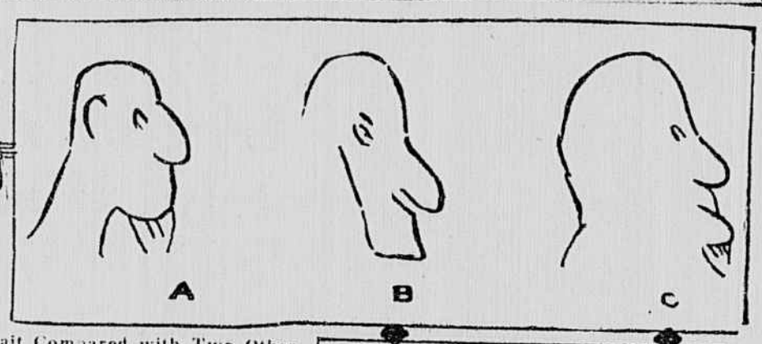
The man is a different type from any ever discovered in prehistoric remains or drawings. He does not appear to bear any resemblance to the Neanderthal skull or the Spy skull, which are so early that it has been questioned whether they are human. He bears the closest resemblance to a skull found at Chancelade, in the department of the Dordogne, France, which has been identified as belonging to the beginning of the Magdalenean period.

The Aurignacian man has a very peculiar head. He has a bulging forehead, which slopes quite rapidly backward. His face is high, as if it had been stretched out from top to bottom. The jaw and chin are heavy and project remarkably. The nose is long and very heavy.

The eye is indicated by two lines and not much can be argued from its appearance, which may be due to the artist's primitive idea of perspective.



The Earliest Human Portrait, Carved on a Piece of Mammoth Bone Found in the Colombiere Rock Shelter in France.



The Oldest Portrait Compared with Two Other Prehistoric Portraits of Later Period. (A) The Grotte des Fees Portrait. (B) The Font-de-Gaume Portrait. (C) The Colombiere Portrait, the Oldest.

The man has a short beard. His arms and body are very hairy. His picture stops short about the middle of his stomach, as there is no space for the rest of his figure.

It is noticeable that the man bears a certain resemblance to the orang-outang, especially in the top of his skull. This is an important point, in view of the scientific theory that we may trace the origin of the different races of mankind from their similarity to the various races of anthropoid apes.

A very curious fact is that this pictured man does not bear much resemblance to the actual Aurignac man whose skull has been found and whom he is supposed to represent. The Aurignac skull had a retreating forehead and a very powerful projecting jaw, but there is nothing in his skull to suggest that he had the queer, low, bulging forehead and bulbous nose of the drawing.

Why did the artist make such an odd-looking man? The French discoverers assume that this is a realistic representation of the man who was living at that time. If so, he does not seem to have left many descendants to-day.

The animals drawn upon the bone with the man and in other parts of the stratum are remarkably well drawn and realistic. The form of the horse's head and body is very natural. This shows that the artist could have represented a man quite accurately if he wished to.

From these facts an English scientist, Mr Leon Williams, has drawn the remarkable conclusion that this picture was really a caricature. The Aurignacian artist was making fun of some conspicuous man of the community, some prehistoric William J. Bryan, who lent himself easily to caricature.

It is also argued that the artist had learned to represent a conventionalized and unnatural type of man. The paintings on the ancient Egyptian temples show a conventionalized type of man with a curious bird-like head and do not represent the Egyptian of the period realistically.

The Piltdown skull, though remarkable for the thickness and strength of the bones and teeth, is shaped rather like that of an intelligent modern man. In connection with this discovery an English scientist, W. P. Pycraft, has suggested the extraordinary idea that we have deteriorated in brain power since the first man came into existence.

"The Piltdown man," he says, "though of comparatively low intelligence, was still far more gifted in the matter of brains than any ape yet discovered, yet the capacity of his brain was far less than that of the famous fossil-men of Spy and La Chapelle-aux-Saints, who, it is to be noted, had a brain-case larger than that of the modern civilized man, showing that during the last few hundred thousand years or so we have diminished rather than increased in brain power, and the signs of the times seem to indicate that we are still on the down grade.

"After the task of restoring the skull was completed, a cast was made of the brain cavity, and this was submitted to Professor Elliot Smith, our greatest authority on the human brain. He finds that while the brain of the Sussex man resembles in many particulars that of the men of the Palaeolithic Age, it is the most primitive and most ape-like human brain so far discovered.

"With the skull numerous flint implements are shown which were taken from the same area. Some of these are of the kind known as 'Eoliths,' which many refuse to believe are of human workmanship. Others, however, are of an early Palaeolithic type, and may well have been used by Eoanthropus in cutting up his, or her, dinner!

"While this skull is commonly spoken of as that of the Sussex man, Dr. Smith Woodward considers it probable that it is actually that of a woman. And this because of the slight development of the brow-ridges. If this be so, then the find is the more valuable, for it is to the young of both sexes, and the adult female, that we turn for evidence of ancestral

The Colombiere Rock Shelter on the Banks of the River Ain, in France, Where the Oldest Portrait Was Dug Up.